

672-012

Dart Aerospace Ltd.

Date: Friday, 23/01/2009 8:44:17 AM  
 User: Julie Dawson

## Process Sheet

<b>Customer</b>	: CU-DAR001 Dart Helicopters Services	<b>Drawing Name</b>	: 0H-58 SKIDTUBE ASSEMBLY
<b>Job Number</b>	: 45124A		
<b>Estimate Number</b>	: 10475		
<b>P.O. Number</b>	:	<b>Part Number</b>	: D058672041
<b>This Issue</b>	: 23/01/2009	<b>S.O. No.</b>	:
<b>Prsht Rev.</b>	: NC	<b>Drawing Number</b>	: D2922 REV A1
<b>First Issue</b>	: / /	<b>Project Number</b>	: N/A
<b>Previous Run</b>	: 45123A	<b>Drawing Revision</b>	: A1
	<b>Type</b> : SKIDTUBES	<b>Material</b>	:
<b>Written By</b>	:	<b>Due Date</b>	: 10/02/2009
<b>Checked &amp; Approved By</b>	: <u>Jul 29.01.23</u>	<b>Qty:</b>	1 Um: Each
<b>Comment</b>	: Est Rev:C 02.06.28 Re-format; ECN 258 KJ Est Rev:D 06.02.06 Added Dt8025 EC		

## Additional Product

Job Number:



<b>Seq. #:</b>	<b>Machine Or Operation:</b>	<b>Description :</b>
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1.0

DC

DOCUMENT CONTROL

**Comment:** DOCUMENT CONTROL

Photocopy bluefile &amp; type labels per PPP D058-672-041 CHG 001

N/A

2.0

D2620

Skidtube, 206 Skidtube

**Comment:** Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part Number Description

Batch

1 D2620

Bent Tube 3" OD

B43845

Pm 09-01-26

3.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1

**Comment:** LANDING GEAR RESOURCE 1

1-Deburr Fwd edge of tube

Pm 09-01-26

2-Weld D2794 cap as per QSI 004 and Dwg D2922. Use aluminum rod.

A/R Aluminum Rod

11/10295

BE 09/01/26

3-Cut aft end of D2620 bent tube as per dwg D2922

4-Drill pilot holes using drill jig DT8480 and DT8025 open to 0.312" dia.

5-Drill holes for wearplates using DT 8487 Open to 0.297" dia.

6-Open holes for aft cap and tow ring as per Dwg D2922.

Pm 09-01-26

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Date: Friday, 23/01/2009 8:44:17 AM  
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## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 0H-58 SKIDTUBE ASSEMBLY

Job Number: 45124A

Part Number: D058672041

Job Number:



Seq. #:

Machine Or Operation:

Description :

8-Remove inner indexing ridge on aft end of skidtubes as per Dwg D2922

9-Deburr and Blow out all chips from inside the tube

pmc 09-01-26

4.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

5010126 (10)

5.0

QC9

VISUAL WELDING INSPECTION



Comment: VISUAL WELDING INSPECTION

PD 09-01-26 (1)

6.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

pmc 09-01-26

7.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

BE 09-01-26

8.0

D2923

Step, 0H58 Skidtube



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D2923 Web

B45209

pmc 09-01-26

9.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Open holes to finished size as per Dwg D2922(without cutting fluid)

2-Countersink crossbolt spacer holes as per Dwg D2922(without cutting fluid)

3-Deburr and Blow out all chips from inside the tube

4-Bond D2923 web in place as per QSI 015. Ensure holes lineup

A/R

Sikaflex-291

M109887

Sikaflex expire date: 09-07-11

pmc 09-01-26

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Job Number: 45124A

Part Number: D058672041

Job Number:



Seq. #:

Machine Or Operation:

Description :

10.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

S 09/01/27 (XU)

11.0

D2794

Forward Cap



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Qty

Part Number

Description

Batch

1 D2794

Fwd Cap

214588

BE 09/01/26

12.0

D2649

Cross Bolt Spacer



Comment: Qty.: 22.0000 Each(s)/Unit Total : 22.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

22 D2649

Crossbolt spacer

B44364

Im' 09-01-27

13.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Weld D2649 cross bolt spacers as per QSI 004 and Dwg D2922.(Remember to back drill each hole to 0.250" before welding the other side)

A/R Aluminum Rod

m/09213 BE 09/01/27

3-Grind welds flush as per Dwg D2922

4-Counterbore 5/16" x 0.750" deep as per Dwg D2922

> DP 9-1-28

14.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

S 09/01/28 (XU)

15.0

QC10

VISUAL INSPECTION OF GROUND WELDS



Comment: VISUAL INSPECTION OF GROUND WELDS

S 09/01/28 (XU)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Job Number: 45124A

Part Number: D058672041

Job Number:



Seq. #:

Machine Or Operation:

Description :

16.0

POWDER COATING

POWDER COATING



Pressure wash -



FL 09/02/09

①

Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

M109796

START TIME:

13:30

OVEN TEMPERATURE:

320°

FINISH TIME:

14:00

FL

09-02-09

①

17.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



MSD



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

09-02-10

②

18.0

D26483

Wearpad



Comment: Qty.: 5.0000 Each(s)/Unit Total : 5.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

5 D2648-3

Wearpad

643989

FL

19.0

D265615

Wearshoe



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

1 D2656-15

Wearshoe

643991

FL

20.0

D265621

Wearplate



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

1 D2656-21

Wearshoe

638748

FL

21.0

D2924

Wearshoe



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

1 D2924

Wearshoe

635368

FL

09/02/10

③

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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Drawing Name: 0H-58 SKIDTUBE ASSEMBLY

Job Number: 45124A

Part Number: D058672041

Job Number:



Seq. #:

Machine Or Operation:

Description :

22.0

MS27039108

Screw



Comment: Qty.: 50.0000 Each(s)/Unit Total : 50.0000 Each(s)

Pick:

Qty Part Number Description  
50 MS27039-1-08 Screw

Batch

m/10467

*FL*

23.0

AN960JD10L

Washer



Comment: Qty.: 50.0000 Each(s)/Unit Total : 50.0000 Each(s)

Pick:

Qty Part Number Description  
50 AN960JD10L Washer

Batch

m/109632

*FL*

24.0

ALS41032130

Insert



Comment: Qty.: 50.0000 Each(s)/Unit Total : 50.0000 Each(s)

Pick:

Qty Part Number Description  
50 ALS4-1032-130 Insert  
or (see QSI 017)

Batch

m/108606

*\**

*FL*

25.0

D26511

Plug



Comment: Qty.: 20.0000 Each(s)/Unit Total : 20.0000 Each(s)

Pick:

Qty Part Number Description  
20 D2651-1 Plugs

Batch

644342

*FL*

26.0

D26513

O-Ring



Comment: Qty.: 20.0000 Each(s)/Unit Total : 20.0000 Each(s)

Pick:

Qty Part Number Description  
20 D2651-3 O-Rings

Batch

644277 (x2) 643849 (x18)

*FL 09/02/10*

①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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Drawing Name: 0H-58 SKIDTUBE ASSEMBLY

Job Number: 45124A

Part Number: D058672041

Job Number:



Seq. #:

Machine Or Operation:

Description :

27.0

D2646

Aft Cap



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2646	Aft Cap	641435

FL

28.0

MS27039108

Screw



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
2	MS27039-1-08	Screw	m110467

FL

29.0

AN960JD10L

Washer



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
2	AN960JD10L	Washer	m109632

FL

30.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

1-Install inserts & wearpads as per dwg D2922. Insert a drop of Sikaflex at insert hole before installing wearplates.

A/R Sikaflex-291

Sikaflex expire date: 09/11

m109883

2-Install O-Rings D2651-3 on plugs D2651-1 with Petroleum Jelly and install plugs as per Dwg D2922

3-Install D2646 Aft Cap and seal with Sikaflex adhesive. Clean excess adhesive

A/R Sikaflex-291

Sikaflex expire date: 09/11

m109883

3- Wing Walk as per Dwg D2922 and QSI 005 4.4

M110454 09-02-10 NC

Batch:

09/02/10

①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 0H-58 SKIDTUBE ASSEMBLY

Job Number: 45124A

Part Number: D058672041

Job Number:



Seq. #:

Machine Or Operation:

Description :

31.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

8 09/02/10 (K)

32.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

5 09/02/10 (K)

33.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

(K)

Identify and Stock  
Location:

QRP 45124 9/2/03

34.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

09/02/23 (K)

Job Completion



W 09-02-23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date:  
User:

**DART**

DESIGN <i>RF</i>	DRAWN BY <i>RF</i>	DART AEROSPACE USA, INC. BELLEVUE, WA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D2922	REV. A SHEET 1 OF 2
DATE 99.10.14		TITLE OH-58 SKIDTUBE ASSEMBLY	SCALE NTS
A	99.10.14	NEW ISSUE	
A1	<i># IP</i> 01.08.20	<i>Ø0.640 WAS Ø0.625</i>	

**RELEASED**  
00.05.11 *#*

Qty	Part Number	Description
X	D2922-041	SKIDTUBE ASSEMBLY
*	D2600-1	EXTRUSION
1	D2646	AFT CAP
4	D2648-3	WEARPAD
1	D2648-5	WEARPAD
22	D2649	CROSS BOLT SPACER
20	D2651-1	PLUG
20	D2651-3	O-RING
1	D2656-15	WEARSHOE
1	D2656-21	WEARSHOE
1	D2794	CAP
1	D2923	WEB
1	D2924	WEARSHOE
50	AKS7-1032-130 or AKS4-1032-130 or ALS7-1032-130 or ALS4-1032-130	INSERT
52	AN960JD10L	WASHER
52	MS27039-1-08	SCREW

**GENERAL NOTES:**

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) LENGTH OF D2600-1 EXTRUSION REQUIRED BEFORE BENDING = 160 INCHES.\*
- 3) INSERT D2923 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241/291 ADHESIVE PER DART QSI 015 AFTER BENDING.
- 4) USE DART DRILL TEMPLATE DT8406 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL AKS7-1032-130 PER SECTION D-D (50 PLACES) AFTER FINISH. INSTALL MS27039-1-08 SCREWS AND AN960JD10L WASHERS IN ALL INSERTS. SEAL WITH SIKAFLEX-241/291.
- 5) WELDING TO BE DONE PER DART QSI 004.
- 6) FINISH:  
ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2923 WEB  
POWDER COAT ASSEMBLY GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3  
BLACK ANTI-SKID PAINT AS INDICATED TO 0.50 ABOVE LOCATION RIDGE PER DART QSI 005 4.4
- 7) INSERT D2651-1 PLUG C/W D2651-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (20 PLACES).

SHOP COPY

RETURN TO

ENGINEERING

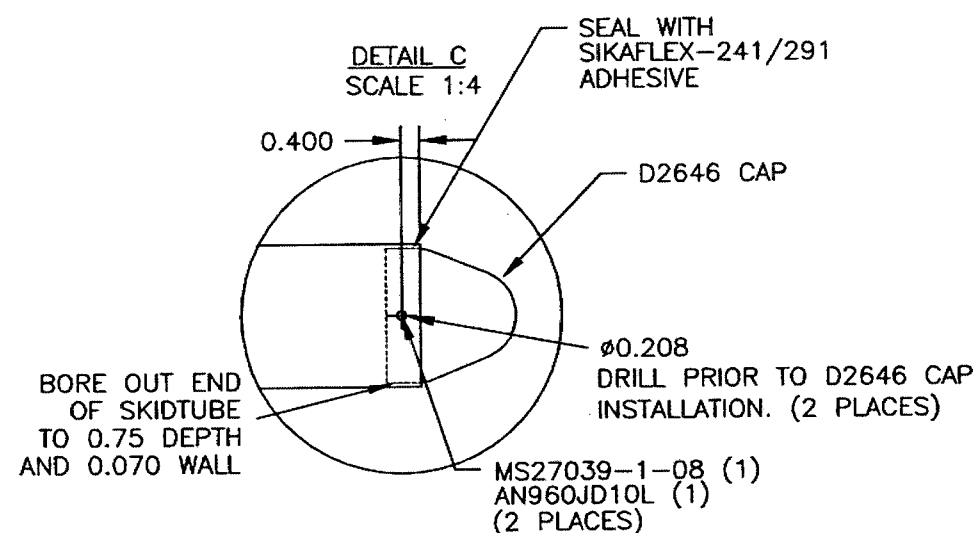
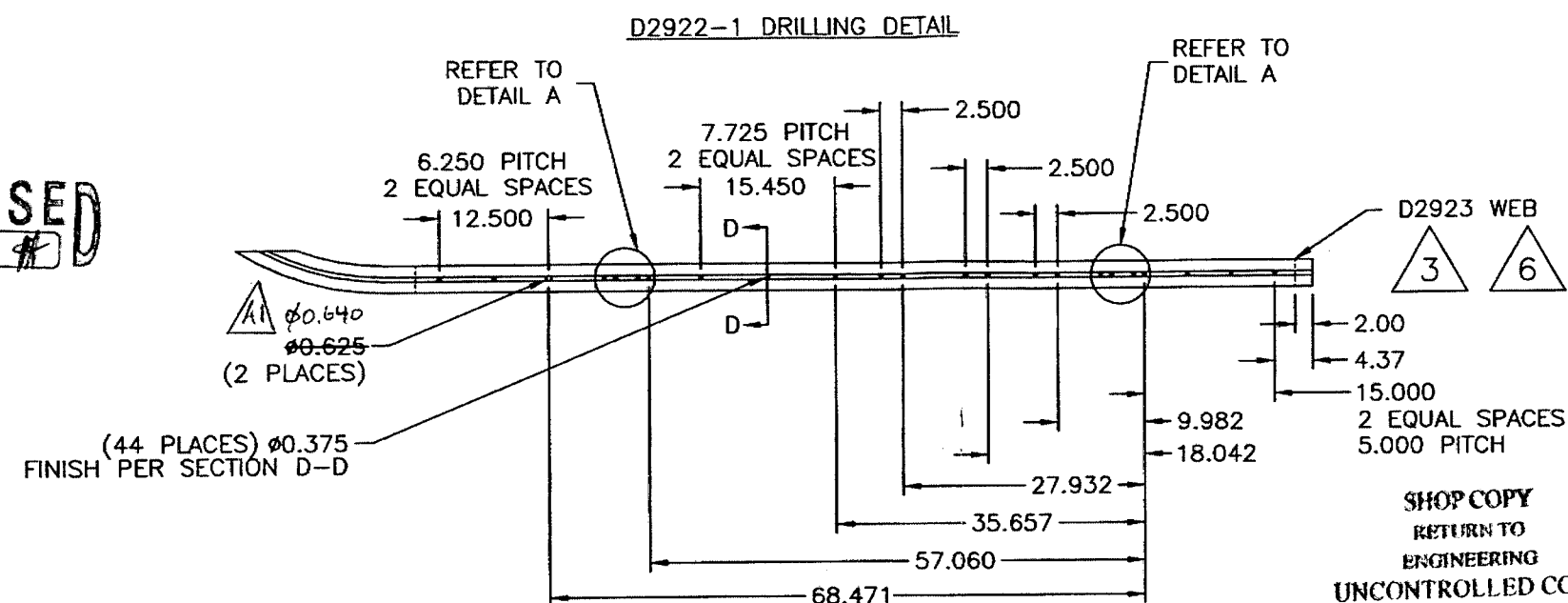
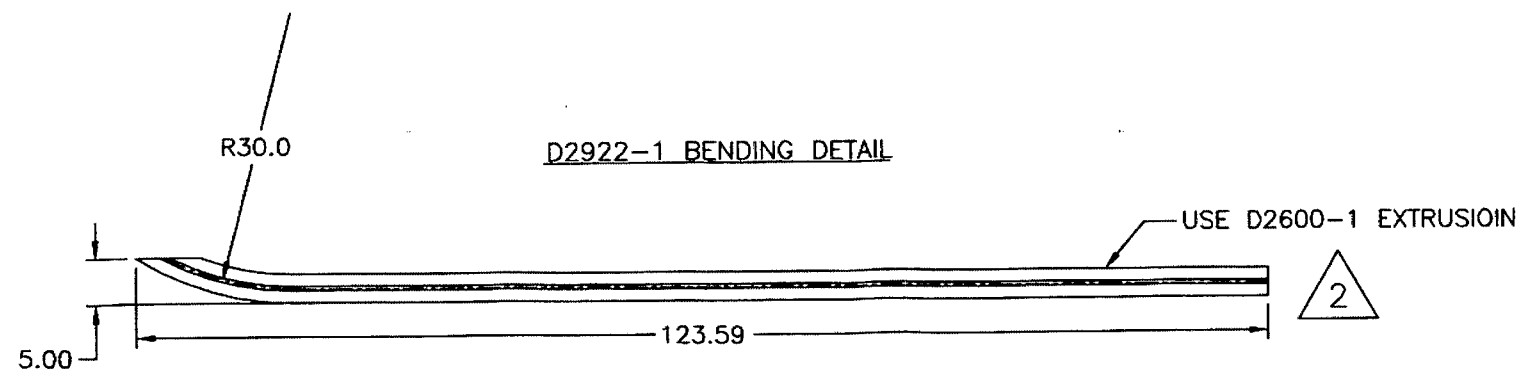
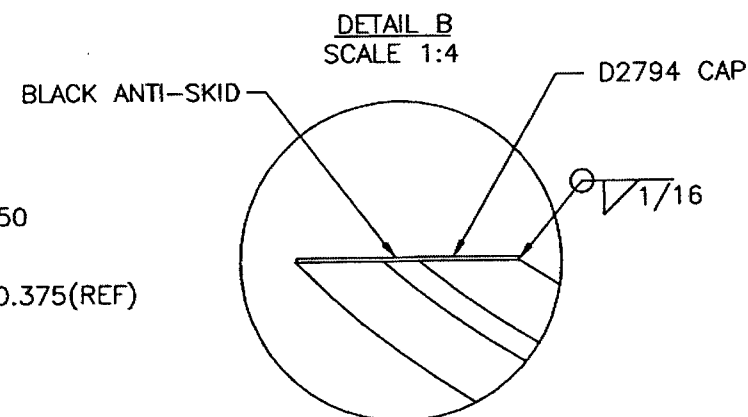
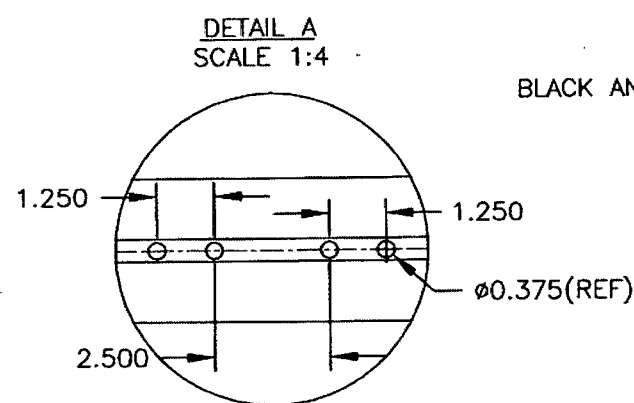
UNCONTROLLED COPY

SUBJECT TO AMENDMENT

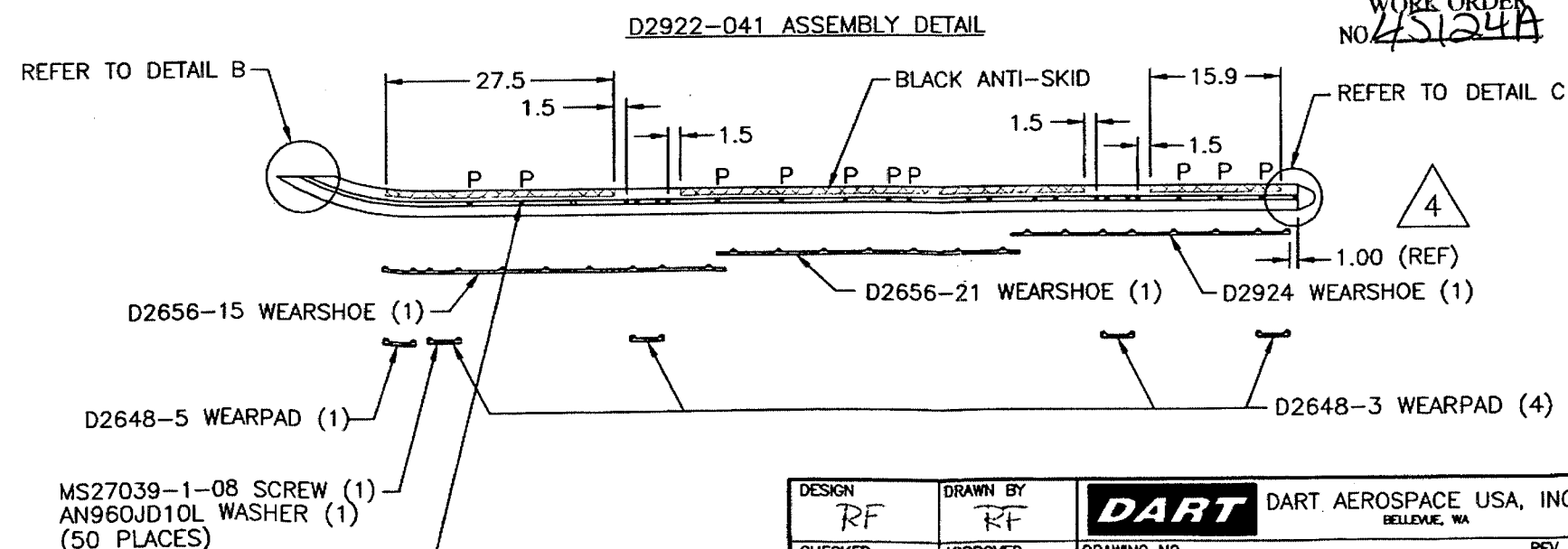
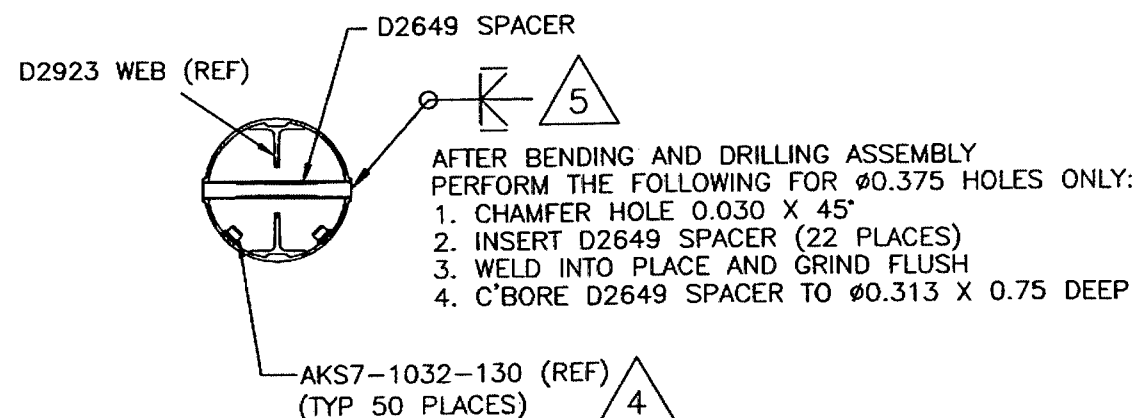
WITHOUT NOTICE

CHECK ORDER

NO. *451247*



**SECTION D-D**  
SCALE 1:4  
FOR 0.375 HOLES ONLY



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RETURN TO  
ENGINEERING  
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SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 45124A

MS27039-1-08 SCREW (1)  
AN960JD10L WASHER (1)  
(50 PLACES)

DESIGN RF	DRAWN BY RF	<b>DART</b> DART AEROSPACE USA, INC. BELLEVUE, WA	REV. A
CHECKED RF	APPROVED RF		
DATE 99.10.14	TITLE OH-58 SKIDTUBE ASSEMBLY	DRAWING NO. D2922	SHEET 2 OF 2
		SCALE 1:20	





NO. 191

**AWS D17.1.2001**  
**QUALIFICATION TEST RECORD**

Name: Barclay Elliot  
Job number: 45124 A  
Part number: D058 670 041 / D206 642 241  
Description: 04 58 / 206 skid  
Welding Process: Tig[☒] Mig[ ]  
Base material: Aluminium  
Current: AC[ ] DC[ ]

**TEST REQUIREMENTS AND RESULTS**

Visual:  
Penetration:

pass[☒] fail[ ]  
pass[☒] fail[ ]

**UNACCEPTABLE**

Cracks:  
Undercut:  
Pin holes:  
Overlap (cold lap)  
Porosity (surface):  
Coloration:

pass[ ] fail[ ]  
pass[ ] fail[ ]  
pass[ ] fail[ ]  
pass[ ] fail[ ]  
pass[ ] fail[ ]  
pass[ ] fail[ ]

Qualifier Pet. Dignel Date of Test Coupon 9-1-28  
Welder Barclay Elliot Date of Test Coupon 9-1-28

The above named individual is qualified in accordance with AWS D17.1.2001 to weld